THE ONE STITCH DROPPED

DOLL DRESSING

DUNHAM

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UNITED STATES OF AMERICA.

MENTAL DEVELOPMENT

AND

MANUAL TRAINING COMBINED

TAKING UP

THE ONE STITCH DROPPED

IN SEWING

BY DRILLS TO SOUND-SINGING

By
MARY E. DUNHAM

"Then the one stich dropping pulled the next stitch out,
And a weak place grew in the fabric stout,
And, the perfect pattern was marred for aye
By the one small stitch that was dropped that day."

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Columbia Book Co.
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Philadelphia

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INTRODUCTORY.

THE old grand-mother sitting by the fireside sometimes dropped a stitch from the rapidly flying needles, and before her dimmed eyes detected the accident the loosened thread ofttimes worked its way into the stocking, marring the beauty and utility of the work ; time, patience and skill were required to repair the damage and insure a perfect whole.

Education, to be complete, must have no dropped stitches. The great development that takes place in the first few years of a child's life must be broad and systematic. Much of what he learns comes to him through his own observations and experiences, and this is well, but parents and teachers have a work in providing and presenting to him that which will best nourish his developing capacities.

A good Kindergarten will supplement the home ; its leaders have made a scientific study of the child and have adapted the exercises to his needs, thus making their highest aim to be the full, all-round development of his many-sided nature.

Educators must be careful that in the next round no stitches are dropped ; if the foundation has been broad and firm the superstructure will be solid and enduring.

As an aid in broadening the instruction of children this little book is sent out. It presents a progressive series of lessons in sewing, for primary children, but its purpose is far deeper than the mere teaching of the use of the needle, necessary as that is.

Instruction in sewing is usually delayed too long. There are many reasons why this work should follow immediately after the kindergarten. The same methods may be used, thus making no breaks in the child's experiences.

Paper-folding, with cutting, may be used for garment pattern-making. Drills may be given and elementary work done which might be irksome to the older child. Greater interest can be aroused then; for it is the age of doll-companionship, and the dressing of the doll-child becomes a work of love.

Lessons in all materials used are given and many life-lessons are learned unconsciously from talks introduced. The Drills and Exercises in the book are the result of several years' experience and thoughtful consideration; they have all been tried with the most gratifying success. They have been received by both boys and girls with continued interest and delight, and beyond doubt have given the little ones a broader outlook into the world, and a deeper knowledge of it and of themselves.

The work is planned to cover a period of two years, giving two forty-five minute lessons per week, for ten months in a year.

Then work with a purpose,
Bear ever in mind,
Threads strengthened in childhood
Prove great joy to mankind.

SUGGESTIONS TO TEACHERS.

The following Drills and Exercises are designed to enable mothers and teachers to interest and instruct the children just leaving kindergarten, in the art of simple garment-making.

The opening drills may seem very elementary, but if they are persevered with and presented with the proper spirit they will interest and instruct the child and prepare him for future work. The drills have been arranged with great care and it is insisted that they be given according to instructions. Care must be taken to provide proper chairs and tables, for the physical comfort and welfare of the child is always of primary importance. Each child should have individual tools and the interest and advantage are much greater when each can have a doll, but if that is not possible one doll may answer for several children.

For efficient work no teacher should have more than ten or twelve pupils in the class, though with intelligent assistance one may direct the work of many more—often there will be one or more in a class able to direct the movements of the others ; then encourage the one who is able to assist by helping another over the difficult places.

Each movement of the drills may be given to accompaniment of simple counting, but both the interest and development may be greatly increased by teacher and pupils joining in use of the musical scale. In the Drills the musical sounds are indicated by the numerals—Fig. 1 representing *do ; 2, ra ; 3, me ;* etc.

Until the pupils have gained easy control of all tools, fingers, needles, scissors, etc., the early drills should be repeated frequently, and many of the drills, as III., IV., V., can be joined in one

exercise. Every lesson should be opened by drills I. and II. and closed with drill II. reversed.

In the early lessons the teacher goes through the drill, then asks the children to do the work with her, using their own materials as she does hers, counting or giving the musical sounds to the several movements. The teacher will find she can the more easily lead the pupils and that they will gain mastery over themselves if the correct giving of the musical sounds is insisted upon from the very beginning. Do not permit careless nor harsh tones in connection with the drills. In the effort to give the tones well the child gets control of himself, physically, and almost unconsciously corrects bad habits of posture ; at the same time the mind and emotions are called into action and a harmonious condition of the whole child is the result.

Throughout the work the aim is to make correct stitches and encourage this branch of domestic economy, not to do fine needle work. That will follow in time, but *must not* be permitted by the little ones. Their muscles, of such delicate adjustment, have not been developed, and we do them an injury when we too soon give work that requires such use of them. Full round-arm movements precede all stitch-making, in order that freedom of motion may be acquired. The oblong of paper 8 by 4 inches has been adopted for all drill exercises and paper work, because it makes an underwaist pattern fitted to the 11 inch doll. The use of manila paper is preferable for all primary work, because of its adaptability for folding and cutting lessons and stitch-making practice. Its color and surface are pleasing to the eye and it is inexpensive. In the use of soft-colored cotton thread, a glimmer of brightness is given and the stitches are more plainly seen.

Fundamentally, there are but three stitches—the Horizontal, Vertical and Diagonal,—and when the pupil has gained an exact knowledge of how each is made, and skill in making each in

half and quarter-inch stitches, he will make the smaller stitches in regular sewing correctly.

Use the full arm swing in teaching all stitches, as that leads to the correct movements when applied to actual sewing. Do not use knots for sewing, only for basting. Always break the thread from the spool, and always cut the thread from the work.

Care must be taken not to tire the child with any one drill, but pass gradually on ; in this way connecting the whole. Discretion must be used as to length of lessons. Much can be gained in thirty minutes, or forty-five can be profitably occupied, but nothing is gained by too long lessons. It is well to announce at the close of the lesson, something of the work planned for the next, and, as soon as possible, request reproduction of work brought from home. The skilful teacher will weave in with the lessons as outlined, many talks that will increase the value and interest.

MATERIALS NEEDED FOR ALL LESSONS.

For the proper introduction of sewing, each child should have individual articles, as follows :

Sewing box, of proper size, to hold necessary articles.
Jointed doll, 11 inches high.
Butler doll stand, No. 2.
Inch square rule, for measuring 12 inches.
Lead pencil.
Scissors, four or five inches long.
Good, well-fitting thimble (not brass).
Spool of colored cotton, No. 40, (pretty blue).
Small card-board pincushion, with pins, and two No. 2 ground-down needles placed therein.
Some very narrow cotton tape.
One tape needle and some small safety pins.
Two dozen pieces of manila paper, 8 by 4 inches

Use the paper for all drills and exercises and the paper garments given for stitch practice.

Have the pins around the edge of the cushion and the needles stuck in the top of the cushion with two stitches showing in them.

Remember ! G-D needles means short needles ; the sharps are too long.

No. 7 G-D needles and No. 50 or 60 cotton thread will be needed for the advanced work.

DRILLS FOR ELEMENTARY SEWING.

I. Position for sewing.
II. Arrange materials on table for sewing.
III. Use of scissors.
IV. Holding material for cutting.
V. Cutting exercise.
VI. Use of thimble.
VII. Use of needle without thread.
VIII. Taking a stitch without thread.
IX. Measuring and breaking thread.
X. Preparing end of thread for threading the needle.
XI. Threading the needle.
XII. Taking a full stitch with thread in the needle.
XIII. Making a knot.
XIV. Exercise in basting.
XV. Exercise in over-handing.
XVI. Exercise in hemming.

The following, or any easily applied little verses or rhymes, may be used to increase the interest :

For basting..... { In and out, in and out,
This is the way we baste about.

For over-handing..... { Over we go, over we go,
Joining two pieces as we sew.

For running stitches... { Now we sew, now we sew,
Many stitches in a row.

For hemming..... { Sew the hem down, sew the hem down,
For each stitch we will make every sound.

DRILL I.—Position.

(Numerals indicate the tone of the musical scale.)

1. Feet on the floor, sitting well back upon the seat.

2. Elevate and expand chest.

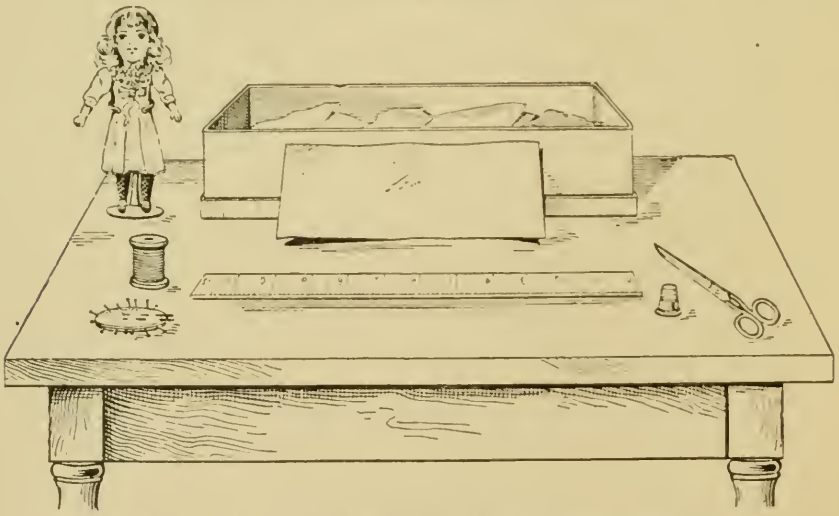
3. Elbows on a line with the waist, holding the hands with the palms toward the chest, fingers curved as for beckoning, thus saying, come good work :

(Repeat 1, 2 and 3, and continue with 4 and 5.)

4. Left hand on waist line.

5. Right hand taking a stitch motion for basting, as follow : Swing the right hand on full arm horizontal circle, from right to left (outer circle first). Repeat swinging for continuous circle for basting exercise. Singing—

"In and out, in and out,
This is the way we baste about."



DRILL II.—Arranging Table for Sewing.

Have all needed materials in the box before commencing the lesson. The sewing box must be near the edge of the table in front of the child.

The teacher must have the same materials as the pupils, and after she has shown what she wants done, she should continue to work with them. Both hands must be used at the same time, or alternately, for placing materials.

1. With both hands lift the box-lid from the box and place it on the table just back of the box, top up (so the box will stand on it after the second move).

2. With both hands place the box on the lid.

3. With both hands take out the measure and place it on the table, between the body and the box.

4. With the left hand stand the spool at the left hand of the measure.

5. With the right hand place scissors at right hand of the measure, with the points slanting toward the box.

6. With the left hand place cushion beside the spool.

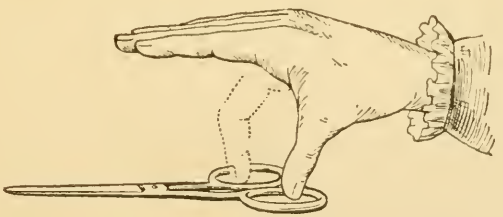
7. With the right hand place thimble beside the scissors.

8. With both hands place one piece of paper between the measure and the box.

Have the materials put back into the box in reversed order, at the close of the lesson.

Care must be taken to handle the materials with the hand which will use them in actual work.

Have the needles placed properly in the cushion before putting away the work.



DRILL III.—Use of Scissors.

Have the scissors as per Drill II. Carefully explain the parts

of the scissors. Hold the right hand over the scissors, with the inside of the hand toward the table.

1. Place the thumb of the right hand in the bow of the scissors, toward the left.

2. Place the third finger in the other bow.

3. Lift the scissors, and, with the first and second fingers of the right hand under the scissors, turn the hand over, resting the little finger on the table.

4. Open the scissors.

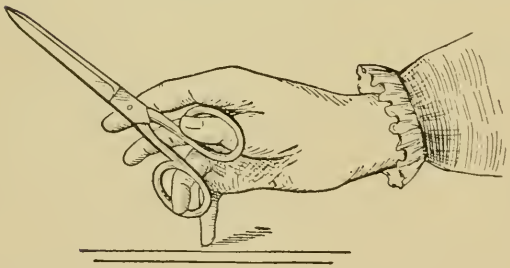
5. Shut the scissors, as for cutting.

Repeat the sounds 4 and 5, with motions, until the child has full use of both hand and scissors.

Care must be taken to have the scissors so placed on the table that the blunt blade will come down on the table for the practice work.

(Incidentally, call attention to the difference between the thumb and the four fingers.)

DRILL IV.—Holding Material for Cutting.



Place one piece of paper with short edge parallel with front edge of the table.

1. Place end of left hand thumb on the paper near the front left hand edge.

2. Extend the first finger of the left hand and place it on the left hand edge of the paper.

3. Draw the paper from the table with the thumb and first finger still upon it, and place the third finger under the paper under the thumb, and the second finger under the paper under the first finger.

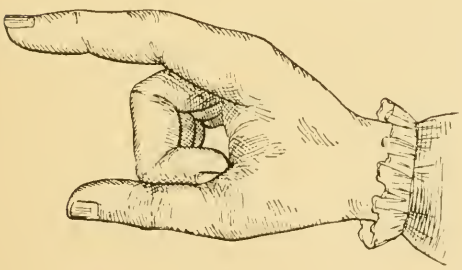
DRILL V.—Cutting Exercise.

Hold the paper as per Drill IV. and the scissors as per Drill III.; except, apply the scissors to the paper for the sounds 4 and 5. Make a long cut the full length of the blade with each repetition of the sounds 4 and 5.

Cut one-inch strips off from the left hand edge of the paper, holding the scissors in the right hand, and cut out toward the left hand as it holds the paper.

By holding and cutting this way the child has the small piece being cut off in the left hand, and both hands aid in straight cutting.

DRILL VI.—Use of Thimble.



Call attention to the joints in the fingers and arms. Illustrate by doll that they will not be injured by use. Teacher and pupils recite in concert the following lesson to the right hand, before giving lesson in use of the thimble-finger :

Right hand, we will give you a lesson—
One thumb and fingers four,
Long finger must wear the thimble,
Or with sewing you will be sore.

1. Place first joint of the thimble finger upon the inside of the first joint of the thumb.

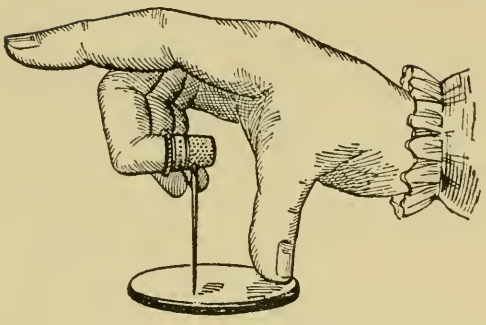
2. Draw thimble-finger nail along inside of the thumb.

3. Shoot, like playing marbles or crokinole.

Repeat first motion with sound until it is fully understood, then first and second, and finally the whole drill.

Observe such gradual steps in each of the following drills :

DRILL VII.—Use of Needle without Thread.



Stand the needle up in the cushion.

Interest will be increased by calling it a man, a straight tree, or anything the teacher may wish.

Continue the lesson to the right hand, thus :

First finger and thumb, give attention!
Of the needle you have the care
To place it in the proper location,
And see each time that it goes there.

1. Thimble on long finger (the finger bent as per Drill VI.) resting on top of needle eye, first finger out, thumb down ; thus making the long and short side of an oblong.

2. Close thumb and first finger on needle near the point, draw it from the cushion and hold it up.

3. Slip the needle between the thumb and first finger until the eye end of the needle only remains between the thumb and first finger.

Repeat until perfect freedom of motion is gained, and then swing full arm for basting motion, as per Drill I.

Lesson to Left Hand.

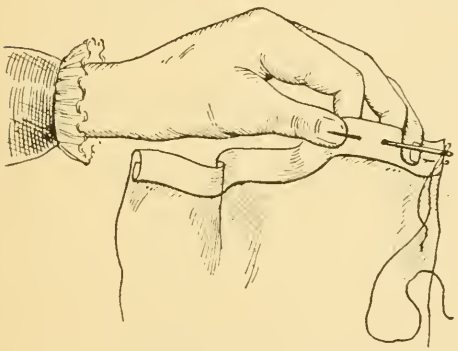
Hold the left hand up, palm towards the face, and claim attention by holding the first finger of the right hand as if speaking to the left fingers.

Left hand, you must remember
That good work depends upon you,
While the right hand will make the stitches,
You must keep the sewing even and true.

Hold the paper over the first and second fingers of the left hand, the right hand end held between second and third fingers. Hold first and second fingers a little apart, thus allowing the needle to take a stitch in the paper between the fingers without pricking them. Hold the paper firmly by pressing the thumb close upon the first finger, and the third finger upon the second.

Represent the left hand as the grandmother, sitting quietly holding the material for sewing, while the grand-daughter runs all around waiting upon her.

DRILL VIII.—Taking a Stitch on the Needle Without Thread.



Talk about the needle, the material, qualities, history, etc.

The pretty shining needle twice through the paper must go for making every stitch the little child would sew. Hold the paper as per lesson to left hand, and the needle and thimble as per Drill VII.

1. Push the needle point down through the paper, between the first and second fingers of the left hand, and carry it under a half inch.

2. Bring the point of the needle up through the paper over the left thumb nail, having the one-half inch stitch on the needle.

3. Push the needle through the paper with the thimble until the needle eye is under the paper.

4. Pull the needle out with the thumb and first finger.

5. Place the end of the third finger over the eye end of the needle and bring the right hand over toward the right shoulder.

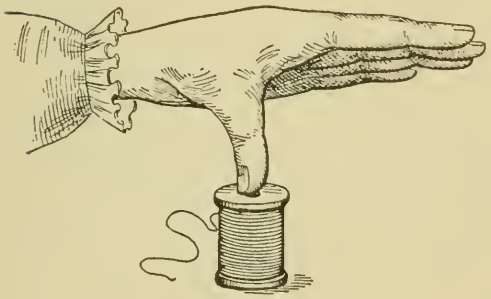
Third finger must hold the thread in the needle,
From the time it is pulled again into sight,
Or the two may not always keep together,
And that would discourage you quite.

Insist upon the proper use of thimble.

DRILL IX.—Measuring and Breaking Thread.

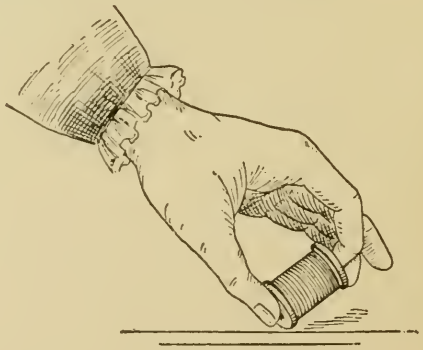
Have the spool in place as per Drill II.

1. Thumb of left hand on top end of spool, first finger out straight, thus with spool forming two sides of a square.



2. Tilt the spool and place the first finger of the left hand on the under end of the spool and lift it from the table.

3. Take the end of thread between the thumb and first finger of the right hand.

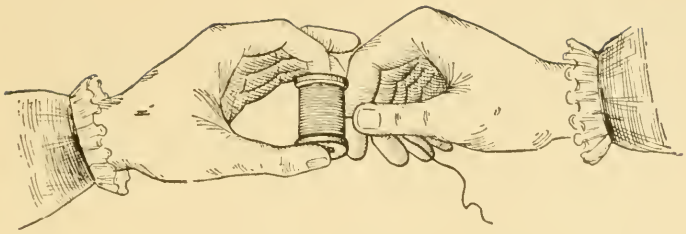


Repeat 1, 2, 3, and then continue with 4.

4. Carry the spool (still in the left hand) up to the top of the left shoulder, right hand holding the end of the thread at the waist line.

(After thus measuring the proper length, drop the end of thread still holding the spool in the left hand.)

5. Bring the spool from the shoulder and place it upon the first finger of the extended right hand with the thread hanging between the fingers and the body.



6. With the right thumb hold the thread against the first finger of the right hand.

7. Wind the thread once around the fingers of the right hand drawing the thread from the spool.

8. Turn the right hand so the thumb will be under the thread close to the spool and break it with a quick jerk over the end of the thumb.

Always break the thread for threading the needle thus leaving irregular fibres of threads.

DRILL X.—Preparing the End of Thread for Threading the Needle.

Hold the end of thread just broken from the spool between the tips of the thumb and first finger of the right hand. Moisten the end by placing it in the mouth, then have a half inch extending beyond the end of the thumb and first finger.

Roll the end between the thumb and first finger of the left hand until it becomes stiff and pointed, roll it toward the body so it will not separate the fine strands or fibres of the thread.

Continue rolling while giving all the sounds of the scale 1, 2, 3, 4, 5, 6, 7, 8.

(Some may object to placing the thread in the mouth but it does seem necessary to moisten it, and the above seems the best way.)

DRILL XI.—Threading the Needle.

Have the needle standing up in the cushion.

Hold the end of the thread as per Drill X. after rolling.

1. Take the needle between the thumb and first finger of the left hand having the needle eye a little above the thumb and finger.

2. Bring the thread over to the needle.

3. Pass the end of thread through the needle eye.

4. Take hold of the little end of thread (thus passed through the needle eye) with the thumb and first finger of the right hand and draw nearly half of the thread through and let it fall ; showing the two ends of thread.

Hold the needle up in the right hand ready to take a stitch, with the left hand on waist line.

DRILL XII.—Taking a Full Stitch with Thread in the Needle.

Continue lesson to right hand repeating that already given and add :

Little finger must take up the double thread,
And help carry it carefully o'er,
After the fingers have done what we said,
Then the whole hand can do much more.

Hold the paper as per lesson to left hand and continue the full stitch following Drill VIII.

1. Push needle point down through the paper.

2. Take up a half inch stitch.

3. Push the needle through until the needle eye is lost to sight.

4. Draw needle out until you see the thread in the needle above the paper.

5. Place end of third finger over the thread in the eye of the needle to hold the thread in the needle.

6. Carry the little finger under the double thread near the eye of the needle.

7 and 8. Draw the right hand (still holding the needle) over toward the right shoulder until the thread is drawn entirely through the paper.

And now we ask you all to be careful,
Try to do the very best that you can,
If you will pay close attention
We will show you the easiest plan.

(This drill is very important and must be well practiced. Instruction fails to bring perfection to the pupil. Practice must be persevered with.)

DRILL XIII.—Making a Knot.

1. Hold the threaded needle, point downward, between the thumb and first finger of the left hand, the thread passing over the first finger, and hold firmly by pressing the second finger against the first finger, (to prevent the thread from coming out of needle eye).

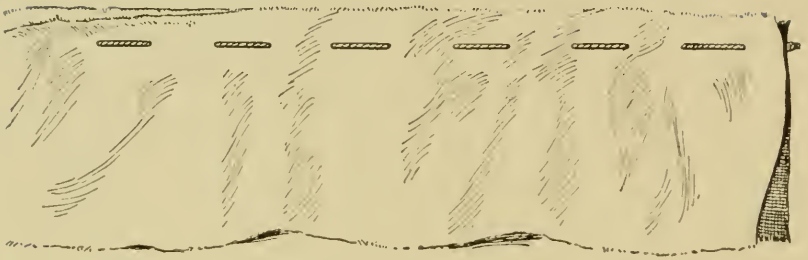
2. Take the end of long thread between the thumb and first finger of the right hand.

3. Wind the thread around the end of the first finger, having the thread crossing on the end of the finger.

4. Roll the long thread over the end of the thread.

5. Push the thread from the end of the first finger with the third finger and draw to a knot, then pass the needle to the right hand, ready to take a stitch.

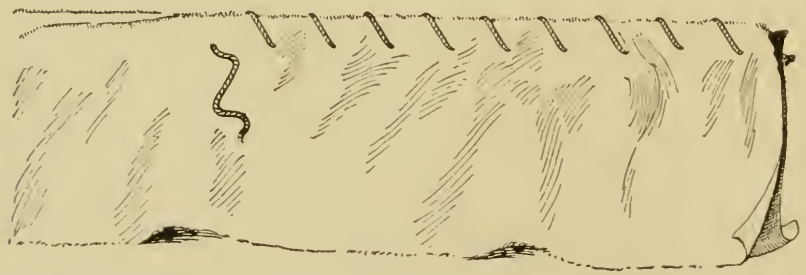
DRILL XIV.—Exercise for Basting.



Never use double thread ; have the needle and the thread as per Drill XIII., and hold paper as per lesson to left hand. Take one stitch at a time, drawing the thread through to the knot, using all the sounds of the scale with each stitch ; leave a space between the stitches the same length as the stitches (not less than half an inch) for even basting.

Fasten the end by taking a full back stitch, going back over the last basting stitch taken two or three times. Remember the part taken upon the needle is the stitch, the thread between the stitches being over the space. When stitches and spaces are of same length the basting is called even or equal.

DRILL XV.—Exercise in Over=Handing.



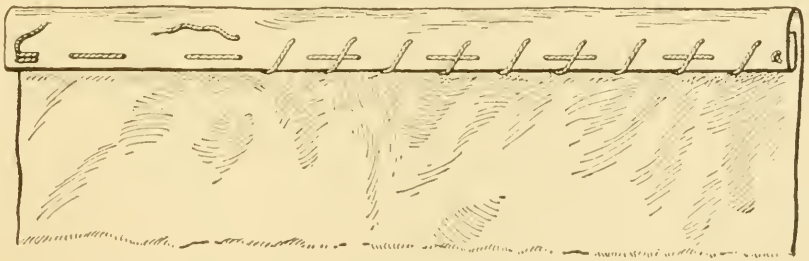
Fold the two long edges of paper together and hold them between the thumb and first finger of the left hand, with the hand over the top edge.

Instead of the horizontal arm circle, as is used in basting, the vertical must now be used ; the upper outward swing being the first count.

Bring the needle point through the two edges of the paper, with the point over the left thumb-nail for the second count, and continue, carrying the thread over the edge of the paper, from stitch to stitch, using same sounds as per Drill XII.

Each stitch should be a quarter inch deep and twice the depth apart, the thread slanting over the edge from one stitch to the next. Do not use a knot, but sew over the first stitch two or three times, having a short end of the thread turned over the edge and sew over it until it is fastened in the seam.

DRILL XVI.—Exercise for Hemming.



For this the arm circle is diagonal from right knee to left shoulder. Place the paper over the first finger-nail of the left hand, holding it there firmly with the thumb and second finger of the left hand. Make diagonal stitches one quarter inch on the needle and one half inch apart. Place the point of the needle for the succeeding stitch to the left from the one taken.

SUGGESTIONS FOR MAKING PAPER GARMENTS.

If the preceding drills have been carefully given, the pupils are now able to use their hands and tools with moderate ease and skill, and they are now ready for the next step. Practice could

be given by making the different kinds of stitches in strips of paper or muslin ; but the interest is much greater (and every teacher knows how necessary that is to true progress) when the little ones feel they are making garments. Paper is used for the first lessons, because it is easily handled, and many new lessons can be learned with it which will afterwards be applied to the cloth.

In making apron No. 1, the underskirt and apron No. 2, the child is learning to turn and baste hems and apply over-handing for over-seaming two edges together. The cape and hat patterns are simply given to introduce measuring, drafting and cutting, but the underwaist may be used for the first lessons in cutting cloth garments from patterns.

The material must be turned over twice to make a hem ; the first turn quite narrow to cover the raw edge, the second turn to give the width of the hem. All hems should be turned over on the wrong side of the garment and must be turned toward the chest, as that is the proper way to have them when doing the basting and hemming. Show that the basting must be put near the first turned edge of the hem to hold it smoothly against the foundation material.

Use even basting half inch stitches for all hems. Baste for all sewing, the basting thread to be removed after the sewing is finished. Turn and baste the hems on the short edges of all garments to have tape run in for gathering strings,—before doing the hems the tape is to be run through. By so doing, the hems where the tape is to go are left open at the ends so the tape needle can run through. Fasten the gathering tape in the middle of the hem by taking two or three stitches all the way through both the tape and material the garment is made of. Narrow tape or any kind of string may be used to gather the garments to fit the doll.

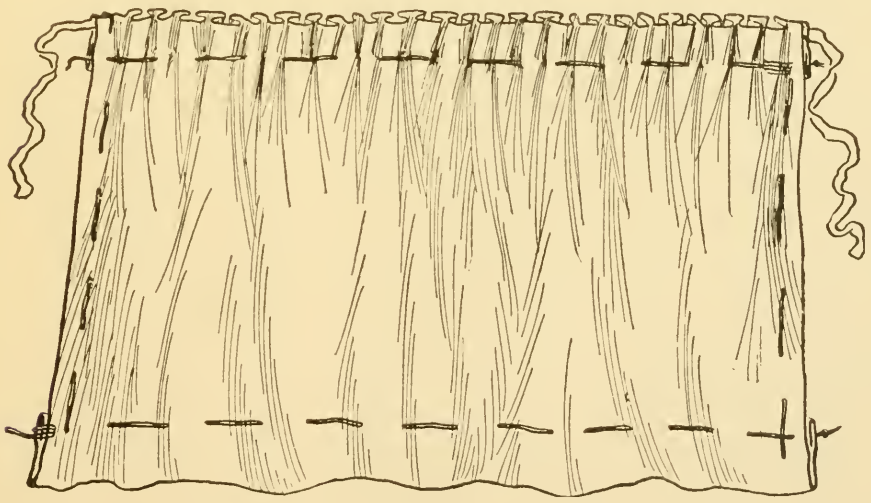
The gathering tape should be longer than the hem it is in-

tended to gather, and after the garment has been gathered to fit the doll the tape can be used to tie the garment on with. A little safety pin may be used to run the string through the hem if the tape needle is not convenient. Great care must be taken to prevent tearing the paper when running the tie string through the hem. Always make the bottom hem of the garment wider than any other. Explain that over-seaming must be done the same way as over-handing and is used only for sewing two edges together.

Always use a knot for basting, for it is so much more easily taken out than the back stitches.

Illustrate all work upon the blackboard, but especially necessary is it for garments and pattern drafting.

I.—APRON No. 1. (PAPER 8 BY 4 INCHES.)

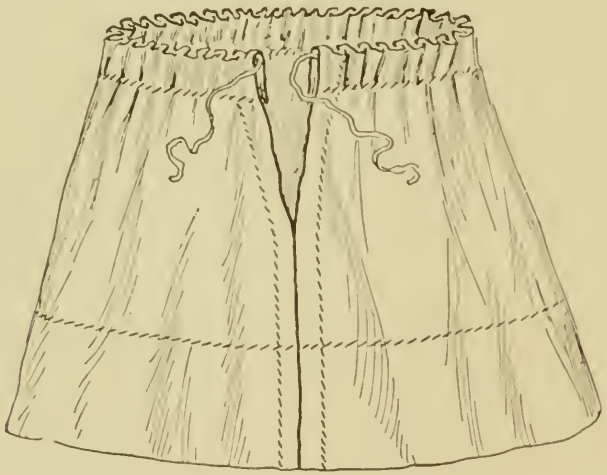


Turn ¼ inch hems on the short edges first, then on one long edge for the top of the apron. Turn ½ inch hem on the other long edge for the bottom of the apron.

After turning all four hems commence the basting at one end of the bottom hem, and baste on the first turned edge of the hems all around the apron.

Care must be taken to have the ends of the top hem well fastened, taking a back stitch over the one that has been taken. Run the narrow tape through the top hem, and fasten it in the middle. Draw it to fit the doll and use the ends for tie strings.

II.—UNDERSKIRT.



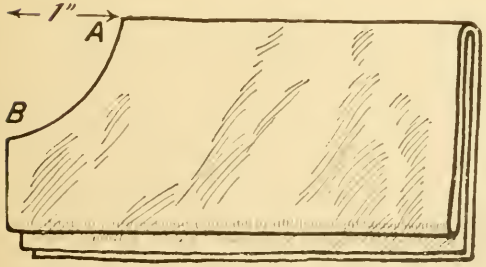
Make the same as the apron, then overseam half the length of the short hems together commencing at the bottom, leaving the top half not overseamed for the vent in the back of the skirt

In this way the child has practice in turning and basting hems in the interest of making a new garment and learning the next stitch, overseaming.

III.—APRON No. 2 WITH STRAPS.

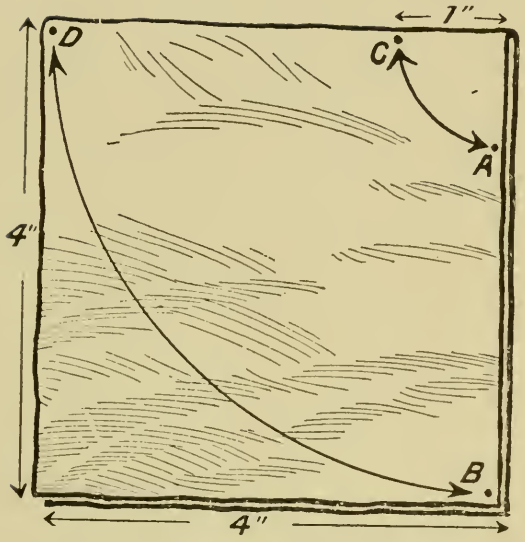
Make the same as Apron No. 1, then fold into quarters the short way to show where the straps are to be sewed to the top hem. Cut two straps the length of the short edges of paper oblong by 1½ inches. Turn all the edges like the first turn of the hem, then fold and baste the two long edges of each strap together and overseam. Overseam the ends of the straps to the top hem ½ inch each side of the quarter fold before running the tie string through.

IV.—UNDERWAIST No. 1 WITH SHOULDER STRAPS.



Make the same as Apron No. 2, except cutting the arm's eyes, and making the straps half the length of those on the apron. After folding into quarters mark dot A on fold ½ inch from top hem and dot B on top hem ½ inch from fold; then draft and cut quarter circle from dot A to B for arm's eyes and sew the straps each side of the quarter circles.

V.—THE CAPE.



Place the paper with the short edges parallel with the front edge of the table. Fold the back half over on the front half, thus making a square. Keep the paper folded and without moving it measure down the right hand edge from the fold one inch and mark dot A. On the right hand edge of the front edge mark dot B. On the fold mark dots C and D at like distances from the right hand edge of the fold. Draw quarter circle from dots A to C for the neck, and from dots B to D for the bottom of cape. Cut along the lines of both circles. Open the pattern and give lessons in quarter and half circle. Cut two strips ½ inch wide from the short edge of practice paper and fasten to front edge of the neck, for tie strings.

VI.—THE HAT.

Fold the two short edges of paper together the same as for cape, and cut apart on the fold, making two square pieces. Keep the two pieces exactly even on the table, fold the back edges over on the front edges, making an oblong; without moving either piece fold the right hand edges over to the left hand edges, making a small square. Without moving the paper, measure the right hand fold ½ inch from the back fold and mark dot A. On

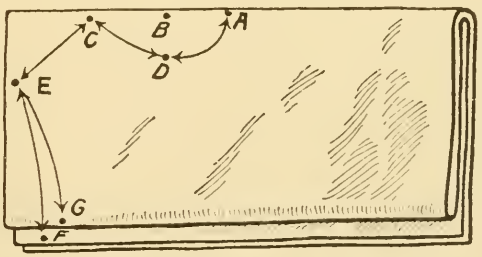
the right hand fold two inches from the back fold mark dot B. On the back fold measure and mark dots C and D at like distances from right hand and back fold corner (or center of the square of paper before it was folded). Mark dots E and F in like manner diagonally. Draw quarter circle through dots A, E, C, and B, F, D. Cut around the outer circle only. Open and give lesson on full circle.

Take away the circle without dots and fold the one with dots same as before cutting; cut this piece on line through dots A, E, C, and open. Place the circle without open center upon the table, put the other on top of it and pin the two pieces together, putting a pin in each crease with the points toward the center and baste the outer edges together.

Explain that the inner circle fits the head of the doll and can be finished with a band.

VII.—UNDERWAIST No. 2.

Place paper with one short edge parallel with the front edge of the table. Fold the back edge over even with the front edge, making a square, then fold the square fold over about ¼ inch, from the front edges of the paper, making a smaller oblong. Without moving the paper measure the oblong fold from the right hand edge two inches and mark dot A. Mark dot B on same fold ½ inch to the left. On the same fold ¾ inch to the left from dot B mark dot C. Mark dot D vertically ½ inch in from dot B. Mark dot E on left hand edge ½ inch from the oblong fold. Mark dot F on front edge of



the paper ¼ inch from the left hand edge. Mark dot G on square fold ½ inch from the left hand edge. Draw quarter circle from dot A to D, a slanting line from D to C, a slanting line from C to E, a curved line from E to F, and a deeper curve from E to G. Cut along all lines from F to A, then open as for square and cut along line from G to E for front neck and then pin the shoulder seams and show how it fits the doll.

(After folding the paper into a square, the square fold represents the middle of the waist pattern, the oblong fold, the under arm fold, and the two front edges of the paper the backs of the pattern. From dots A to D, to C, the arm's eyes, from C to E shoulder seams, from E to F back neck, and from E to G front neck. Such explanations may be given, or left until later. This pattern is simply given as practice work in measuring, drafting and cutting).

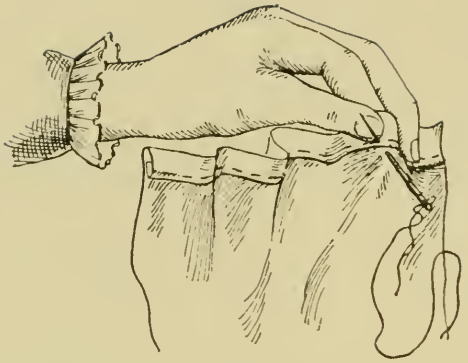
All garments cut with deep curved or circular edges should have the seems clipped around the edges.

SUGGESTIONS FOR MAKING CLOTH GARMENTS.

The skill and knowledge gained in the previous lessons can now be applied to actual garment making. The measurements given are correct for the eleven-inch doll. Use soft unbleached muslin for the underskirt, drawers and underwaist; gingham of small plaid for the apron and dress, and plain cotton cloth for the cape and hat. Have the oblong pieces of paper and cloth for patterns and garments prepared before beginning the actual lessons. The instructors must use judgment regarding needles and thread.

Show samples of good needlework, and having learned to make the stitches correctly, the pupils will soon of their own accord make them of desirable size. Care must be taken not to have the thread in the needle too long, or greater effort will be required from the elbow and shoulder every time the needle is drawn from the sewing. Never use a knot in sewing; the first stitch in a seam must be fastened like the last one in basting, and joining either a new or broken thread must be done in precisely the same manner. From even basting we make uneven basting by taking shorter stitches and leaving longer spaces, and this is better as a guide in seam making.

Basting is only preparing the seams for sewing. It holds the pieces together and shows where to sew; the seam must be sewed just inside of the basting. Use paper for practice in combination of stitches for seam making. For running stitches take a stitch upon the needle the same as for one stitch using only sounds 1, 2, and repeat 1, 2, until as many stitches as are wanted are on the needle, then continue as if they were but one, thus saving time and exertion by drawing the needle from the work but once for three or four stitches instead of for each. For the back and running stitches for seam making take the back stitch over the last one taken, and while it is on the needle take two or three running stitches, and so continue taking the back and running stitches. Carefully fasten the end of either a fully used thread or at the end of the seam. From overhanding we make overseaming for sewing either selvage or turned edges, and stitches larger than for overseaming for overcasting raw edges to keep them from raveling; have the seams basted and then overcast the edges before sewing them. A hem is used to strengthen the edge of a garment or to prevent fringed edges. For starting hemming put the point of the needle under the first turned edge of the hem, and take the fastening stitches in hem only, leaving a little end of thread turned under



the hem. Hold it firmly between the thumb and first finger of the left hand, at the same time hold the hem where the stitches are to be taken to fasten it to the foundation cloth around the first finger nail, then put the needle point through the foundation material close to the first turned edge of the hem, and take a stitch on the needle passing the point of the needle out through the first turned edge of the hem coming over the thumb nail as per drill XVI. After this much is fully understood with explanations for combination and application of stitches to seam making, all manner of sewing can be done in any kind of material. Always have the cloth pieces enough larger than the paper to allow for seams outside of the patterns. As soon as practical, seams and parts of garments should be marked in writing. Stick all pins vertically to seams, with the heads towards the edge.

UNDERSKIRT.

Muslin : one piece 12 by 6 inches.

Make the same as paper underskirt only the hemming follows the basting, and the hem at the bottom may be wider. After overseaming the short hems together run the tape through the top hem for gathering to fit and for trying on the doll

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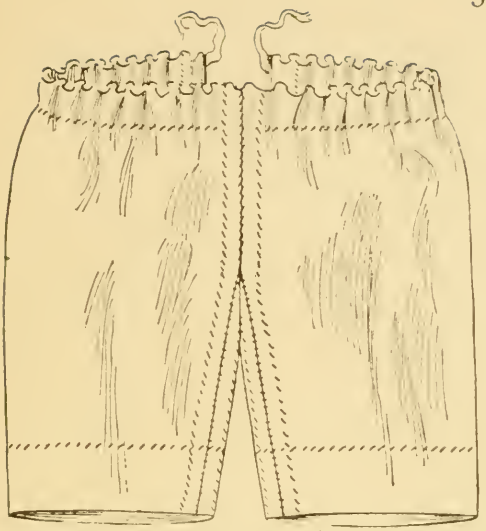
DRAWERS.

Muslin : two pieces 7 by 6 inches.

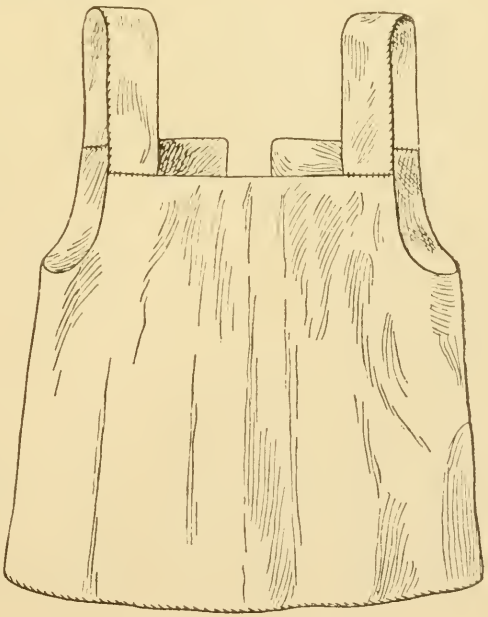


Make narrow hems on both short edges of each of the two pieces, for the two legs of the drawers join the two pieces by overseaming one-third of the length of the hems for the front, leaving the back open.

Make one-quarter inch hem across the two pieces thus sewed together for the top. Next make half-inch hems at the bottom of each leg, then join the two narrow hems on each leg by overseaming one half of the distance from the bottom up to where the two legs are joined together. For fastening on the doll tie the two ends of drawing string in the top hem.

UNDERWAIST No. 1.

Muslin : two pieces 9 by 5 inches. Draft and cut pattern same as for paper underwaist No. 1 only cutting the straps off of one long edge, and then cut in two making each strap 4 by 1½ inches.



Place the two pieces of muslin exactly together with the long edges parallel with the front edge of the table. Pin the pattern on perfectly smooth. Cut the double muslin one-quarter inch outside all around the pattern for seams. Cut the

straps like paper straps. Remove the pattern and replace the pins in the muslin only in same places. Commence at the bottom of right hand back edge and baste (using uneven basting) for one-quarter inch seam all around to the bottom of the other back. Remove the pins and sew inside the basting with back and running stitches. Take out the basting thread and turn the waist inside-out so the seamed edges will be inside, crease the seam flat by pinching between the thumbs and first fingers. Turn the bottom edges over on the inside like the first turn of a hem ; baste and then overseam the two edges together. Make the straps by overseaming the two long edges of each together, and then sew them by overseaming to the seam at top of waist each side of the arm's eyes, having the overseam back from the arm's eye. Fasten in the back with little safety pins.

UNDERWAIST No. 2.

Muslin : two pieces 9 by 5 inches.

Draft the pattern same as paper underwaist No. 2. Cut by this pattern and baste and sew the same as underwaist No. 1. Last of all overseam one back and one front shoulder edge together and rub overseams open.

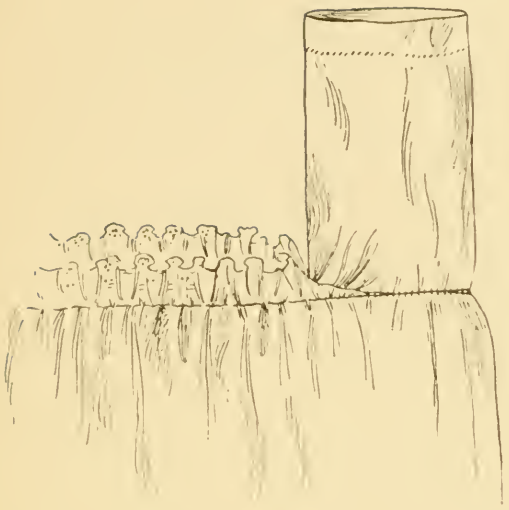
APRON.

Gingham : one piece 11 by 6 inches, two pieces 4 by 1½ inches.

Make the same as paper apron No. 2, with the hemming and overseaming finished. Run the narrow tape through the top hem to gather it to fit the doll and fasten by tying the ends of tape.

(Underskirt can be made 12 by 6 inches same as paper, only of muslin and hemming and overseaming finished).

DRESS.

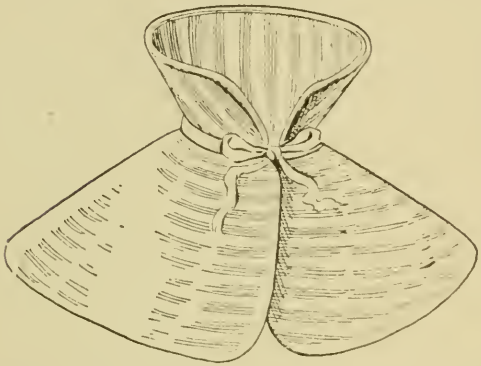


Gingham : one piece 14 by 1 inches; two pieces 5 by 4 inches.

Dress made the same as underskirt leaving out the tape until after the sleeves are sewed to the top hem. For the sleeves make one-quarter inch hems on both long edges of each small piece. After taking out the basting turn the short edges of the sleeves over on the wrong side like the first turn of a hem, and baste and overseam the two edges of each sleeve together, take out the basting and rub the overseams open with thumb and first finger nail. Fold the dress into quarters having the vent at the back, and crease so the quarter folds will curve for the under arm crease. Pin the sleeves with one hem to the top hem of the dress so the overseam in the sleeve will be at the under arm crease, and overseam the sleeves to the top hem of the dress one-quarter of the width of the sleeves each side from the overseam in the sleeve. After the basting has been taken out and the overseam opened flat, run the narrow tape through the top hem of the dress from vent to sleeve and across the tip of the sleeve, and so continue until it comes out at the other edge of the vent. Do not run the tape across under the sleeves, but come out from dress and go into the sleeve and from sleeve to dress ; making a hole between the hemming stitches with tape needle.

CAPE WITH COLLAR.

Use soft plain cotton cloth. Paper : two pieces 12 by 6 inches, for the cape. Paper : two pieces 6 by 3 inches, for the collar.



Draft the pattern same as for paper cape only using different measurements, and mark dots E and F diagonally same distance from right hand edge of fold as dots A and B.

Mark dots A, E, C for the neck in both the cape and the collar 1½ inches from the right hand edge of the fold, and dots B, F, D for the bottom of the cape 6 inches from the right hand edge of the fold, but for the collar mark dots B, F, D only 3 inches from the right hand edge of the fold. Pin patterns to the cloth and cut the same way as for muslin underwaist. After cutting clip around the neck, commence the seam at one front edge of the neck and baste and sew all around to the other edge of the neck. After taking out the basting turn both the cape and collar inside out through the neck and crease the seams flat. Place the collar on the cape so the wrong side of the collar will be next to the right side of the cape, and pin the raw edges of the collar and one of the cape together. After basting and sewing are finished turn the seam down on the inside of the cape and turn the loose edge of cape over and hem it down into the seam so no raw edges will show. Fasten with tie strings sewed to each side of the neck. Or the cape and collar can be basted together at the neck, and the seam bound with ribbon using the ends for tie strings.

HAT.

Paper : one piece 10 by 5 inches. Paper : one piece 8 by 2½ inches.

Fold, draft, and cut pattern same as for paper hat only use different measurements. Make band 8 by 2½ inches.

Mark dots A, E, C for the head circle 1 inch from the right end back fold corner, or center of large square. And dots B, F, D for the outer circle 2½ inches from the same corner. After cutting the head circle clip all around it before sewing to the band. Take the band on the fingers and then place the head circle so the clipping will come toward the knuckles ; hold the straight long edge of the band and the clipped edge of the head circle perfectly even and baste with even basting for a small seam. After the head circle has been basted to the band join the band to fit the head circle and sew with close back stitches, then turn the seam against the band and turn the other long edge over like the first turn of a hem, then fold it double so the turned over edge will cover the seam already sewed, and baste and hem right on the seam. Then place the circle without the head circle on the table right side up, and place the one with the head band on top of it wrong side up with the band standing up, and pin carefully so the outer circle edges are even (remember they were just the same when cut) and baste and sew ; finish the edges with overcasting. Turn out through the head circle bringing all right side out and crease the edge seam flat.

SUGGESTIONS FOR MAKING SHAPED GARMENTS.

The following dictated garments can be made by using the seams as previously taught ; or for older girls new seams may be

introduced. The underwaist may be made of single muslin thereby giving more practice in hemming. The backs and bottom should be hemmed before the shoulders have been joined, and the shoulder seams may be sewed with back and running stitches then finished either by overcasting the raw edges or by felling. Very narrow hems must be used on the neck and arm's eyes; if too wide they will draw the edge out of shape. Put the pins near the edge of the pattern when pinning to the cloth for cutting, and when replacing in the cloth use the same pin holes; too much pricking wears as well as soils the cloth.

Care must be taken when making garments to keep all pieces together as nearly as possible; in so doing much annoyance will be avoided (beside giving the lesson over) holding all forces together for strength.

Give lessons on quality, width, quantity, and cost price of material. Teach that the warp threads are the strong threads, the foundation threads and that they run with the selvage, while the woof threads are the filling running from selvage to selvage, and that a bias-fold or cutting runs diagonally across the threads.

Overcast the edges of the seams before sewing, just after basting; the edges are easily raveled or frayed from handling, and the overcasting prevents it. For narrow hems on bias or curved edges the first turned edge must be basted before the second turn is made, and after the second turn is made baste and finish the same as any other hem. For introducing the felling baste two edges together the same as for overcast seams, except leaving the edge of one piece the depth of desired finished fell seam in from the edge of the other piece, using uneven basting and sew with back and running stitches. After taking out the basting thread open the material sewed together, and crease the seam flat against the foundation so the wide edge of the seam will cover the narrow edge. Then hold the seam over the finger nail same way as for

any hem, and turn the raw edge of the wide seam under the narrow edge with the point of the needle a short distance at a time, and hem it, so continuing until the seam is finished. Only about half or three-quarters of an inch can be turned under at a time or it will not keep even or regular in width. The fell is very difficult and should not be attempted with young children. The garments can be trimmed by sewing lace to the hems at top and the bottom according to fancy, but must be overseamed to the hem before the tape is run through if gathering be desired. The neck and arm's eyes may be finished by binding with either bias strips or tape by more advanced pupils. For close back stitching take one stitch, and then go over it, putting the point of the needle in the same place the point was first, and then carry it under and as far to the left from where it was first as the length of the first stitch, and so repeat taking one stitch at a time, taking the stitch on the needle twice the desired length for the back stitch to show on the right side. (I consider this quite a useless stitch for garment making in these days of sewing machines, but it may be used in fancy work or for finishing vents in skirts).

MEASUREMENTS FOR GARMENTS FOR 16 IN. DOLL.

Neck, 5 inches.
Waist, 8 "
Under arm, 2 inches.
Arm's eye, 4 "
Shoulder seam, 1 inch.

Length of waist in front,		3½ inches.
" " " " back,		3¾ "
" " underskirt,		6 "
" " drawers,		5½ "
" " sleeves,		4½ "
" " sacque night gown,		11 "
" " dress skirt,		7 "
Around the hand,		3 "

Material one yard wide needed for the garments.

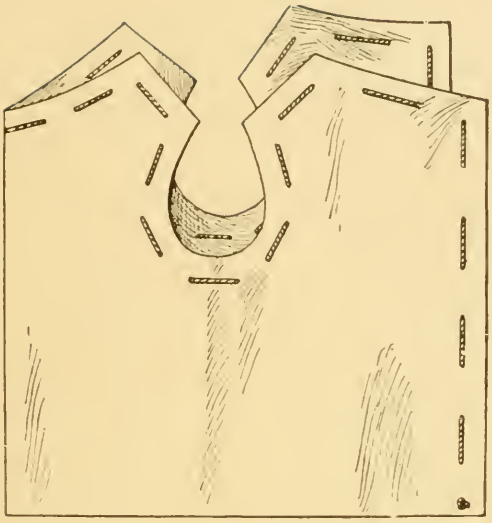
¼ yard of muslin will make		2 under waists.
¼ " " "		2 underskirts.
¼ " " "		2 pair of drawers.
¾ " " "		2 nightgowns.
1 " gingham "		2 dresses.
1 " plain or plaid goods	will make	2 cloaks.
¼ " " "	"	2 hats.

For fine work use No. 7 needles (ground-downs), and No. 50 or 60 cotton thread to match color of material.

Allow all cloth sufficiently larger than the pattern for lapping the hems and for seams.

Measure from joint in neck above feet a speck
From shoulder o'er to shoulder,
Around the neck, the waist, the arm,
And length of sleeve as told her.

UNDERWAIST.



Paper for pattern, 11 by 5 inches.

Measurements: Neck, 5 inches, waist, 8 inches, length of front, 3½ inches, length of back, 3¾ inches, under arm, 2 inches, shoulder seam, 1 inch.

To make pattern for single muslin waist, turn both short edges and one long edge over, making three-quarter inch hems. Place paper on the table with the bottom hem toward the right hand, wrong side up. Fold, measure and draft the same as for previously dictated waists using the measurements given. Mark dot H on shoulder line 1 inch from dot E, and dot I one-eighth inch in from dot E, and arm's eye curve from dot H to I for front arm's eye, and from H to A for back arm's eye instead of from dot C.

Make according to previous instructions.

Use safety pins for fastening, unless with advanced pupils where buttonholes can be made.

GORED UNDERSKIRT.

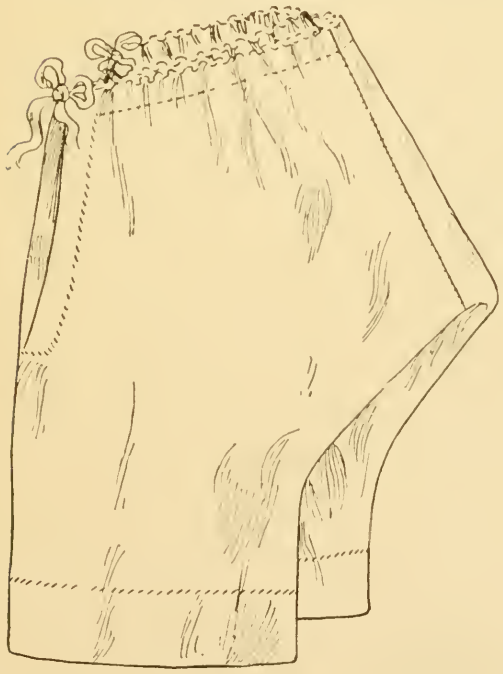
Paper for pattern, 18 by 7 inches, and 10 by 2 inches. Length 5 inches; waist, 8 inches.

Place paper with one long edge parallel with the front edge of the table ; measure the front edge from the right hand edge 6 inches and mark dot A. On the back edge same distance from the right hand edge, mark dot B. Draw line 1 from A to B. Fold the right hand edge over to line 1 and crease for the middle of back width. On this crease mark dot C from the back edge 3 inches for the vent in the back. Fold the left hand edge over to line 1 and crease the middle of the front width. Measure as now folded on the front edge from the left hand fold 3 inches and mark dot D. On the back edge 2 inches from the left hand fold mark dot E. Draw line 2 from D to E. Pin the two thicknesses of paper together between lines 1 and 2 and cut along lines 1 and 2. The pieces pinned together are the side gores, the narrow part of both the front and side gores being the top. With the pattern double, pin the straight edges of side gores to the edges of front gore having the top edges even, then the bias edges of side gores to straight edges of back width (the bias edges will be longer than the straight edges, and all edges and folds should be marked with writing before cutting apart.) Trim carefully around the bottom, cutting off the extra on the bias edges, making them even with the straight edges. Take the pattern apart and pin singly to the muslin with the straight edges along selvage or with the warp threads, and cut. Commence at the top for seam making. Sew with back and running stitches ; have the raw edges overcast. Cut the vent down the middle of the back width and hem it, going down with one-quarter inch hem and up with one-

half inch ; keep both hems even all the length of the vent, and finish by a pleat formed at the bottom, stitching the wider one over the narrow one. Make one-quarter inch hem at the top, and finish with tape for gathering and tie string. Make three-quarter inch hem at bottom. The skirt can be finished at the bottom with edging or lace overseamed to the hem.

SHAPED DRAWERS.

Paper for pattern, two pieces 8 by 7 inches.



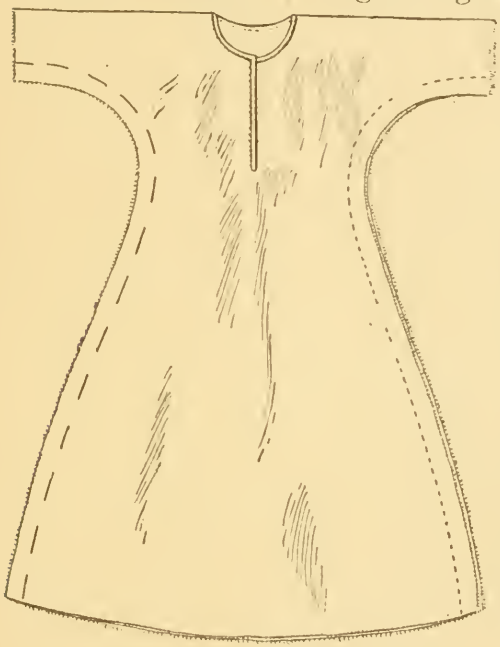
It is better to cut two patterns before attempting to cut the muslin. Measurements : waist, 8 inches, length of side, 5 inches.

For pattern for one leg turn three-quarter inch hem on one long edge, place the paper on the table with the turned hem toward the right hand, fold the back edge over to the front edge. Measure down the right hand fold 2½ inches from the long fold and mark dot A. From dot A draw a hoizontal line three quarter inch long and mark dot B. On front edge 2½ inches from right fold mark dot C. On left hand edge 1 inch from the front edge mark dot D. On long fold three-quarter inch from left hand edge mark dot E. On long fold 2½ inches from dot E mark dot F (to

show where to cut vent down the side of the drawers.) Draw curved line nearly quarter circle from B to C, a slanting line from C to D and a slanting line from D to E. With paper folded cut along lines from A to C, to E. Open the paper, hem fold included, and pin to the second piece of paper and cut it like the first pattern, then pin the two legs together. After explanations take one leg pattern and pin onto double muslin, the long fold with the warp threads ; cut the double muslin according to earlier directions. Commence the seams for sewing the two legs together at the top. The seams are much more easily handled when the two legs are joined before sewing up the legs ; these seams may be finished either by overcasting or felling. Sew the leg seam from the bottom of one leg along to the bottom of the other leg, carefully joining the back and front seams. The vents at the side may be hemmed like the vent in the skirt or both hems may be narrow. Make one-quarter inch hem at top for tie strings, and three-quarter or one inch hem at the bottom of each leg.

SACQUE NIGHT GOWN.

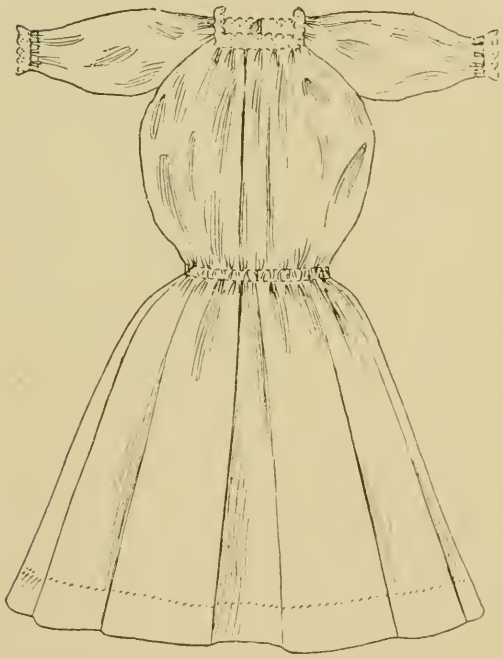
Paper 24 by 12 inches. Measurements: neck, 5 inches; length of sleeve, 5 inches; length of gown, 11 inches.



Place the paper on the table same as for drafting skirt, fold the back edge over to the front edge, then fold the right hand edge over to the left hand edge, thus having four thicknesses of paper. Without moving the paper mark dot A on short fold 1 inch from long fold. On long fold 1½ inches from the short fold mark dot B. On front edge 3 inches from short fold mark dot C. On front edge 2 inches to the left from dot C mark dot D. Draw a vertical line 1½ inches from dot C, and mark dot E. From dot D draw a vertical line 2½ inches long and mark dot F. On the front edge one-half inch from the left hand edge mark dot G. Draw nearly quarter circle line from F to G, and a slanting line from G to left hand edge of long fold. With the paper folded cut along the lines from C to G, and from G to long fold. Open the short fold (still having the paper double) and mark dot H on long fold 2½ inches to the right from dot B. Mark dot I on long fold 2 inches from dot B toward the left. Draw curved line downward from H to A, to B. Cut on line from B to H for the neck. Open the paper entirely and refold along the short fold to show the back

and front neck and where the seams must be on the sides. Open the pattern again and pin singly to the muslin with the long crease running with the warp threads. Cut along the crease from the neck to dot I for the vent in front. Remove the pattern and pin the sleeves and under arm seams before basting. Finish vent like in skirt, make narrow hems around neck and sleeves and three-quarter inch hem at bottom, fasten with tie strings.

BLOUSE WAIST DRESS.



Measurements : waist 8 inches, under arm, 2 inches, arm's eye, 4 inches, length of sleeve, 5 inches, around hand, 3 inches, length of skirt, 8 inches.

Paper for skirt pattern, 22 by 9 inches.

Make the same as gored underskirt except using different measurements. Mark dots A and B for the back width, 9 inches from the right hand edge.

After folding the paper mark dot D for the bottom of the front width 3½ inches from the left hand fold, and dot E from the left hand fold 2½ inches for the top of front width. Finish vent same as previously directed, and make one-quarter inch hem at the top and one inch hem at the bottom. Run the tape through the top hem and gather to be sewed to the waist.

For Waist.

Paper 13 by 5 inches.

Turn both short edges for three-quarter inch hem and one long edge for one-quarter inch hem. Place the paper on the table and fold the same as for underwaist. Measure on long fold 3 inches from hem on short fold and mark dot A. On left hand edge 1 inch from long fold mark dot B. Draw slanting line from dot A to B for arm's eye. Cut along slanting line, open and pin to the gingham with one short edge along the selvage. Finish the hems on back edges and the bottom, but do not hem at the top until after the sleeves have been sewed to the waist. Do not run tape through narrow hem until after the skirt and waist have been sewed together.

Sleeves for Blouse Waist Dress.

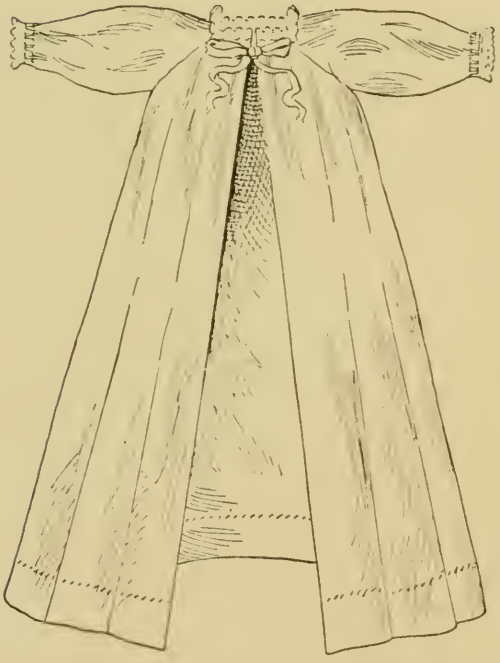
Paper for pattern 7 by 6 inches.

Place the paper with the short edge parallel with the front edge of the table. Fold the back edge over to the front edge. On the front edge 2 inches from the left hand edge mark dot A. On the left hand edge 1 inch from the front edge mark dot B. Draw a slanting line from dot A to B, and cut along the line for the bias edges of sleeve to be sewed to the arm's eye of the waist. Open the pattern and pin on the double gingham with the short edges running with the selvage or warp threads. Cut and remove pattern. Fold the two pieces like the pattern was and sew each sleeve from the long straight edge to the bias, for the seam under the sleeve. Make one-quarter inch hem on the long straight edge and run tape in and draw together to fit the hand ; fasten the ends of tape over the wrong side. Join the waist and sleeves together around the bias edges having the seam in the sleeve coming under

the arm when finished. Make one-quarter inch hem all across the top of the waist and sleeves. Overseam lace about 1 inch wide to the top hem and gather to fit the neck, running one string through the hem and another through the lace near the edge. Run tape through the hem on bottom of waist and gather to fit the doll and then join to skirt by overseaming.

Fasten with tie strings.

DOLL'S CLOAK.



Draft and cut pattern same as for waist and sleeves of Blouse Waist Dress, only use different measurements. For cloak make oblong three times the waist measure, by measure of doll from back of neck to top of shoes. Fold, draft, and cut the same as for blouse waist except allowing one-half inch more for each arm's eye measure. Make 1 inch hem on each short edge for the front (the cloak to be open in the front) and make wider hem on the bottom. Make the sleeve same as for dress only allow 1 inch more on each edge of the oblong and one-half inch for arm's eyes, or the same as arm's eyes in cloak. Sew the sleeves to the cloak the same way as to the waist of dress. Finish with wide lace at the neck.

DOLL'S HAT.

Allow one-third of the measure around the head for the diameter of the head circle, and add twice the desired width for the brim for the square measure. Fold, draft, cut and make same as dictated for hat for 11 inch doll. Use one-half of diameter of head circle for dots A, E, C, and one half of the full square for dots B, F, D. For band allow one inch more than head measure by width desired for band.

(After finishing the Shaped Doll Garments the child should be able to quite fully understand the required shaping, and with suggestions as to proper proportions can apply the same to garments for small children.)

APPENDIX.

Advocates of manual training have demonstrated the value of sewing with other manual training processes as an educational means by which the brain is developed through the use of the hand.

In the earliest stages of sewing the needle and thread were used separately. A sharp thorn, a splinter of wood, or in many cases a bone served to make holes in skins which were to be fastened together.

A narrow piece of skin was then inserted in the holes and thus the skins were laced together.

After a time an eye was made in the needle; then with the use of animal and vegetable fibre for yarn and with the wearing of cloth came the possibility of finer needles and closer sewing.

Many interesting subjects could be introduced through the appended chapters but for use in connection with the prearranged work we need consider only the following:

THE SEWING BOX.

The sewing box is preferred to the sewing bag generally used for class work; because of the greater convenience of handling all materials needed in concert, and less opportunity for wrong handling, thereby mussing or injuring the same. In using the box all is in open sight.

THE JOINTED DOLL.

The jointed doll is a better representation of the child; and while the doll has been considered an imitation baby from the

earliest ages, with careful training the doll-keeping virtually becomes a part of home-making, home-keeping education.

THE BUTLER DOLL STAND.

The Butler Doll Stand is the invention of Mary Louisa Butler, of Chicago, Ill., who in her unbounded love for children realized the need of some assistance to make the doll more than a mere baby to them; and by aid of the stand the doll becomes the model for miniature garment making.

PAPER MAKING.

Paper making is one of the most useful arts. In remote antiquity the Chinese made paper from the bark of a special mulberry tree and from a grass.

In 105, A. D., an inventor born in 89, A. D., had succeeded in making paper of hemp, of rags, and old fishing nets. Straw was used a century ago, but its extensive use is of recent date. There are many varieties of paper now made: (1) news and printing paper; (2) writing paper of various kinds; (3) wrapping or packing, many colored; (4) copying, tissue, blotting, filtering, and card or mill board paper. In 1772 there were sixty varieties. The first paper mill in the United States was established in 1690, on ground now included in the city of Philadelphia, Pa. In 1897 there were 1000 paper mills in the United States.

LEAD PENCILS.

Lead pencils were in use in 1565, made of a slender stick of black lead encased in a thin covering of wood. Faber established a branch manufactory in New York, in 1861. Since then other companies have been established for manufacturing many styles; among the latest the paper covered self-sharpening pencils. Various coloring matter is used for different colored pencils. The most extensive black lead mines known are near Fort Ticonderoga, N. Y.

PINS.

The earliest kinds of pins probably were thorns or the small bones of fish and animals. Among ancient articles were found some pins of bronze, and bone, a few of copper, and one of iron. The solid pins now in use were first made in 1840. Up to that time each pin made was passed through the hands of fourteen different persons. Now they are made at the rate of one hundred and sixty per minute. Ordinary pins are made from brass wire and when finished by machine they are cleaned by boiling in beer. They are then coated with tin and afterward brightened by shaking in a bag of bran or sawdust, and then papered by a self-acting machine.

For mourning pins iron wire is used and blackened with suitable varnish which is afterward hardened. The finest pins are those made of hair-like wire for insect collectors. Blanket and safety pins with a clasp and one end resting in a loop are made in various styles.

PIN CUSHIONS.

The cardboard pin cushions are made of two circles of cardboard of same size (the covers used for glass jars can be bought

and they answer the purpose very well) covered with cloth and overseamed together. Cut the covers about half an inch larger than the cardboard all around; gather each piece with small even basting stitches near the edge, leaving the thread without drawing until after the cardboard is placed in the center. Then draw the thread until the cloth fits smoothly on the right side. Pin the two pieces together with all edges of seams between the two pieces; overseam all around and fasten the ends of thread.

NEEDLES.

The sewing needles seem to be among the oldest implements used by man, and have been made of various materials, such as bone, ivory, wood, and metal. Steel needles were made as early as 1270. The processes by which sewing needles are made are about twenty-two: (1) The wire is cut into lengths for two needles; (2) they are raised to a dull red heat, placed in loose bundles inside of iron rings to be straightened by rolling each bundle backwards and forwards on a face plate with a curved bar; (3) the wires are pointed at both ends; (4) stamped in the middle of each length to produce the flattened mark for the holes; (5) the holes are punched each side of the flattened middle; (6) while the heads are still joined they are spitted by two wires flattened at one end to retain them; (7) they are filed and broken in two so a row of single needles is left on each spit; (8) the needles are raised to red heat and cooled by placing in continuous flowing coal-oil; (9) in parcels of fifty thousands they are scoured with soap to remove the oil used in tempering the eyes; (10) they are then blued to soften them; (11) in about one hour with the assistance of a little fine emery and oil, and constant

swinging on the wire the eyes are smoothed so they will not cut the thread ; (12) the needles are then rolled in sand and emery powder, and putty powder ; (13) the polishing powder adhering to them is removed with soap and water ; (14) a number of these bundles are then placed between two wooden slabs, the upper one being quite heavy, and made to roll backward and forward as a polishing machine for several hours.

After receiving a high polish in this way they are not touched again by hand (to prevent rust) before leaving the factory. Lastly the needles are papered either by being spitted in cloth pasted on paper, or by being made up into small packets in which case the bits of paper are cut and folded in a machine like that used for envelope making. There are many sorts and sizes, including those used for embroidery, canvas sewing, upholstery, surgical and other purposes.

For plain sewing they are put up in packages of twenty-five needles, each with size represented by a number ranging from No. 1 to No. 12, decreasing in size with increasing numbers ; thus No. 1 large, No. 12 fine ; and they are called sharps (long), betweens (shorter), and ground-downs (G. D.). Ground-downs are the preferred needles for quick easy sewing. The finest quality of needles are hand polished with fine emery on flax thread, the eyes finished with gilt.

THIMBLES.

Thimbles are covers for the fingers as a protection against the needle when sewing. They are made of brass, silver, gold, ivory, ebony, and aluminum. The indentations should not be large or the needle is liable to catch in them. Ivory and ebony

thimbles are best fitted for embroidery or lace work where silk is used. Silver is preferred for general use, and aluminum being lighter in weight and quite inexpensive is the most suitable for class work.

The Dutch are said to have been the inventors of these extremely useful articles. They were introduced into England by them two hundred years ago.

SCISSORS.

Scissors were in use as early as 1417. They are made of three pieces, two sharpened blades with a bow or ring formed at one end of each piece to put the thumb and fingers through when being used, and a screw or rivet for fastening the two blades together and upon which they swing. One blade is made at a time; after the blades are cut, hardened, and shaped, a hole is bored in each for the rivet. After the blades and rivets are fitted and made to work smoothly they are taken apart, the blades are ground, and then polished with oil and emery. In 1760 Robert Hinchcliff, of Sheffield, England, made the first pair of fine hand polished scissors and presented them to the lady of his choice.

Other manufacturers have improved upon them since and many kinds and sizes are now made. The best scissors are made of steel and the cheapest are made of cast iron.

STEEL.

Steel possesses several valuable properties which do not belong to either cast or wrought iron; it is harder, denser, and whiter in color. It is used for making needles and scissors.

EMERY.

Emery in external appearance has nothing in common with the brilliant stones to which it is related, it being a dense opaque, bluish, black substance. It is prepared for polishing purposes, by being first broken into lumps, then crushed into powder, and sifted to various degrees of fineness. By filling a bag or sack with fine powdered emery we have the emery cushions for cleaning or scouring rust or roughness from the needles.

CLOTH.

Cloth is the term used for any woven fabric, be it cotton, wool, linen, or silk.

TAPE.

Tape is a narrow web of cloth.

COTTON.

Cotton is an important vegetable fibre.

It was first produced in India, and was introduced into America in 1536. It is found most profitable to plant new seed every year. The preparation of the ground takes place during the winter months, and as soon as frost disappears the soil is laid off into rows, varying in width from two to four feet; the seed is then sown either in rows or in holes some distance apart. Cotton is planted in some parts of the United States in March or April. In about eight or ten days after the planting of the seeds the little green shoots appear above ground, and they must then be weeded and thinned. The bloom appears in June. There are several

species of cotton plants varying in growing height from four to twelve feet, with equally different color of blossoms, some being straw color in the morning, white at noon, and pale pink in the evening, turning to purplish pink with black spots next day, while some are in part or wholly purple, and others are of bright pink or red color. The flowers very soon fall off leaving the fruit called capsules. After the flowers fall the capsules or pods which contain the cotton grow very fast and soon open forming bolls that look like snow-white wool, having numerous black seeds. The pods open first in August and the plant continues to bloom and open bolls until frost comes.

As the cotton ripens it is gathered into bags or baskets suspended from the shoulders of the pickers ; it is then spread out and dried, then separated from the seeds, after which it is packed into either bags or bales, some of which weigh from forty to fifty pounds. Upon arrival at the mills it is put into a mixing room where it is sorted, and again cleaned ; then it is passed through the spreading machine, after which it is wound in a fleecy state upon large wooden rollers to be transferred to the carding machine. The first cotton mill in the United States was built in 1743. A thread has been spun so fine that one pound of cotton if stretched out would reach more than one hundred miles.

MUSLIN.

Muslin is a cotton fabric woven plain without any looping of the woof thread upon the warp. A piece of muslin measuring three yards in length by one yard in width was manufactured in India at a cost of not less than two hundred dollars, the weight of which was only about one-fifth part of an ounce. But none approaching it in fineness is made now. Printed muslins are made for summer attire.

GINGHAM.

Gingham is a cotton cloth or fabric of light or medium weight and is woven from colored yarns into stripes or checks. Cotton cloth sold under other names partake of the same nature as gingham.

CALICO.

Calico is a printed cotton cloth or fabric. The first calico print works in England were established near Richmond in 1617 by a Frenchman. The first step in the process of printing calico is drawing the design. One hundred years ago only one color was printed at a time, but machines are now used to print sixteen colors at one operation. There are several methods of producing patterns. They are called styles ; as, Madder, Padding, Steam, Spirit, etc. One factory alone prints twenty-five thousand miles of calico annually.

WOOL.

Wool is an animal production, and from the earliest historic times it has been used for woven fabric. The common sheep was probably the first animal domesticated by man. The leather made from the skin of the sheep is much used in book binding and for making gloves. The wool was probably pulled from the skin of the living sheep at first. Sheep shearing (cutting the wool from the sheep's back) is referred to in Scripture.

Sheep shearing takes place in May ; it is now done by machinery, enabling one man to clip more than thirty sheep in one day. Some fleece in choice sheep weigh three hundred pounds ;

the best wool grows on the sides and shoulders of the animal. While wool is called white it is generally of a dingy appearance, sometimes black or with black spots; the natural black wool is considered very valuable.

Wool working on a commercial scale was not established in the United States until about the end of the eighteenth century.

THREAD.

Sewing thread, be it cotton, linen, or silk, is two or more yarns twisted together. For the six cord cotton thread (1) the yarn is doubled and wound upon bobbins; (2) the double yarn is twisted into a two-ply thread; (3) the thread is rewound upon bobbins for the second twist; (4) the thread is twisted a second time on the twisting frame, three two-ply threads being thus formed into a six-cord thread; (5) the thread is rewound on large bobbins from which it is reeled into hanks for bleaching or dyeing; (6) after this it is rewound on bobbins for spooling; (7) winding the thread on spools for use.

In the early part of the nineteenth century the manufacture of cotton thread was introduced into Paisley, and in 1892 about twelve hundred hands were employed at these mills. The J. and P. Coates' Mills spread over forty acres of ground and employ five thousand persons in the three different plants, one of which is at Pawtucket, R. I. Among the other manufacturers in the United States are Clark Brothers, Willimantic, and Broks.

Linen thread from flax was first made by a woman named Christian Shaw, of Bergerran, England, in 1722. Although much less thread is manufactured from linen, it is perhaps used for a greater variety of purposes, from very fine lace making to coarse book-binding and shoe-making.

SPINNING.

Ancient spinning was one of the simplest arts, requiring only the aid of two short pieces of sticks for twisting fibrous substances into round strands of yarn for thread or rope making. For ages the only spinning apparatus was the spindle and distaft. But modern developments have called forth more inventive ingenuity in spinning than in any other industrial operation. Simple as the spindle is it has continued in use from prehistoric ages to the present time. The Muckle wheel came into use in Europe in the Fourteenth Century. In 1738, Lewis Paul introduced a series of inventions to supersede hand spinning. James Hargreaves invented his spinning Jenny in 1764. A spinning frame which forms the fundamental feature of the modern spinning machine was invented by Arkwright in 1767. The spinning Jenny was developed into the spinning mule by Crampton in 1779. Following the invention of the mule two hundred strands of yarn are handled by mechanical agency precisely in the same way as one spindle did a single strand for ages. Different kinds of fibre require different treatment and special machinery, and yarn of the same fibrous material may be prepared and spun in several different ways according to the uses for which it is intended. Spinning thus becomes a complicated and delicate art.

WEAVING.

Weaving is the art of forming a web or cloth by the intersecting of two distinct sets of fibres or threads.

The one set of threads which pass in a longitudinal direction from end to end of the web is called the warp, and the thread

which crosses and intersects the warp at right angles is called the woof or weft.

The art of weaving even in its simplest form demands a certain amount of manual dexterity combined with mechanical skill. It is a universal art and the textile skill of any people shows the measure of their culture. Next to the industries for the production of food, the manufacture of cloth is the most important.

[And now may the proper, hygienic, comfortable clothing (garment making) become one of the most carefully considered, well-directed branches of instruction in all schools.]

FINGER LESSON.

Right hand, we will give you a lesson,
One thumb and fingers four ;
Long fingers must wear the thimble,
Or with sewing you will be sore.

First finger and thumb give attention,
Of the needle you have the care
To place it in proper location,
And see that each time it goes there.

Then after the thimble has pushed it,
Until the eye has gone out of sight,
You again take hold of the needle
And bring it over towards the right.

Third finger must keep the thread in the needle,
From the time the eye comes again into sight,
Or the two will not always keep together,
And that would discourage you quite.

Little finger must take up the double thread
And help carry it carefully o'er,
Then after each finger has done what we said,
The whole hand can do much more.

Left hand, you must remember
That good work depends upon you,
While the right hand will make the stitches,
You must keep the sewing even and true.

Now we ask you all to be careful,
Try to do the very best that you can,
And if you will pay close attention
We will show you the easiest plan.

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